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Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 112

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BRIEFS

BROADCASTING CONFERENCE--Tokyo March 5 KYODO--The third conference of broadcasting unions completed its week-long meeting here Wednesday after adopting 35 resolutions including one that said the group will cooperate in checking the high cost of televising major sport events. A total of 125 delegates from 45 countries took part in the meeting at the NHK Broadcasting Center. A statement issued at the end of the meeting said "The Tokyo conference concentrated on topics of common professional interest to broadcasters all over the world. These included the use of the satellite system in TV and future developments; worldwide collaboration in fields such as sports and news; the rapid growth in technology which constantly places new types of equipment in the hands of broadcasting engineers, and legal problems related to copyrights and the protection of the broadcaster's ownership of his productions. Staff training, including broadcast journalists, was also a subject of common interest." The statement said that "the current level of payment for the right to cover sporting events in television was discussed. The entitlement of the audience to see major events--freedom of information in the sporting field--should not, in the view of the unions, be reduced, or possibly in some cases lost, by excessive demands for payment by the television organizations." [Text] [OW051215 Tokyo KYODO in English 1149 GMT 5 Mar 80 OW]

INDIAN-FRENCH PROTOCOL COOPERATION--India and France are to cooperate in audiovisual technique to meet the needs of the communication media in India. A protocol to this effect was signed by Information Minister Sathe and the secretary of state of the French Post and Telecommunications. The protocol envisages direct broadcasts by satellites, use of Telex system and television via cable. Cooperation in technology know-how, exchange of personnel and promotion of joint activities in third countries are also included in the protocol. [BK031525 Delhi General Overseas Service in English 1000 GMT 25 Feb 80 BK]

USSR-FRG EXCHANGE--A protocol was signed in Moscow today on exchanges for 1980 between USSR Gosteleradio and Second West German Television. It provides for the exchange of television films and material on topical events of the countries' life. A series of TV programs is planned in various parts of the Soviet Union. [Text] [LD070700 Moscow Domestic Service in Russian 1300 GMT 6 Mar 80 LD]

CSO: 5500

TELECOMMUNICATIONS PRODUCTION, EXPORTS EXAMINED

Madras THE HINDU in English 13 Feb 80 p 23

[Text]

Currently nearly 25 per cent of the total electronics production in India falls under the category of telecommunication electronics. In 1977 it formed 25.1 per cent, the production of communication equipment amounting to Rs. 128 crores out of a total electronics production of Rs. 509 crores. Table I shows the production in the telecommunication sector from 1975 onwards.

TABLE I

Telecommunication Equipment Production in India

	1975	1976	1977	1977-78	1978-79
Teleprinter (Nos)	5177	6750	5500	NA	NA
Telephones (million Nos)	0.364	0.424	0.420	0.425	0.425
Strowger Exchange line equipment (million lines)	0.140	0.138	0.150	0.149	0.154
Crossbar Exchange line equipment (million lines)	0.112	0.093	0.110	NA	0.101
Electronic exchange line equipment (line Nos.)	—	100	3000	NA	992
Transmission equipment (million Rs.)	200.3	256.1	260.0	289.7	307
Wireless communication equipment (million Rs.)	326.8	373.2	400.0	NA	NA

Source: Figures for 1977-78, 1978-79 are from the ITI Annual Report 1978-79 and refer to ITI production only. The figures for the other years are from the Electronics Commission.

Exports of communication equipment were only marginal. Table II shows the production and export of communication equipment.

TABLE II

Production and exports of communication equipment from India

(Rs. million)

Year	Production	Export
1973	580	—
1974	700	—
1975	970	36.1
1976	1100	23.3
1977	1280	30.0

Source: Report of the Planning Commission Working Group on Electronics Industry.

The annual import figures are not readily available. However, according to the Planning Commission Working Group on Electronics Industry, "During the Fourth Plan period, 1969-1974, the direct imports were about Rs. 4,251 millions". The estimates for the Fifth Plan are much higher. According to the same report, imports of switching and transmission equipment were proposed to the tune of Rs. 10,779 millions. To be sure, not all these imports would have constituted electronics imports. In terms of electronic content this would have amounted to approximately Rs. 2,500 millions. For the period 1978-83, equipment imports of Rs. 3,000 millions are projected by the Planning Commission. They are likely however, to be much larger, since it is quite unlikely that the physical targets projected by the Planning Commission will be met and this shortfall will necessitate additional imports. For instance, with respect to the production of switching equipment from ITI, the Planning Commission projected a target of 275,000 lines for 1978-79. However, during 1978-79, ITI produced only 256-600 lines, a shortfall of 7 per cent. The attainment of the even higher targets during the remainder of the Plan period is contingent on the successful completion of ITI plant expan-

sion and modernisation plans. Thus it would seem that imports of telecommunication equipment would constitute a sizable proportion of India's domestic requirements in the foreseeable future.

However, in spite of this high level of imports, India has built up a substantial experience both in R and D and production of telecommunication equipment. Of course, much more could have been done. But some of the constraints under which the industries have been operating are not of their own making.

Let us take the case of telephones. The telephone density is quite low in India, being around 2.5 to 2.8 telephones per 1,000 of population. Table III gives the telephone densities in some other countries, both developed and developing.

Some of the differences in the telephone density between India and the other developing countries can be explained by different levels of urbanisation. While in India the level of urbanisation is about 20-25 per cent, these levels are much higher in South America.

If we consider only the telephone density in the major urban centres we would find similar values. For example, the Madras Telephone Exchange System had (as on December 31, 1979). 77,241 working lines for a population of over 4 millions. This gives a telephone density of about 20 per thousand of population. This low density along with the types of systems already installed and the user behaviour are the two major reasons for much of the customer dissatisfaction of the apparent breakdown of the telephone system in India. As we have seen already, we have imported a substantial quantity of telecommunication equipment owing to the shortage of domestic productive capacity. In that process, we have learnt (as the ITI Chairman put it) that "no system designed for an industrially developed country would work satisfactorily in the Indian environment without suitable modification. System conditions in the two countries (i.e. the developed and India) were totally different. Standard available systems were designed for countries with a high telephone density and a low calling rate per subscriber and could not cope with the traffic and climatic conditions in India, where the telephone density is low and the calling rate very high. In fact, the number of call attempts during the busy hour in India has never been experienced in any other country in the world". The data from other countries seem to confirm this high usage rate.

TABLE III

Telephone density, 1977
(Nos. per 1000 population).

U.S.A.		744 *
U.K.		415 *
Japan		424 *
Argentina		90
Brazil		41
Mexico		59
Nigeria		2
Egypt	(1974)	14
India		3

* Relates to 1971.

Source: U.N. Statistical Year book 1978.

Table IV gives the number of calls per telephone per year in some countries.

TABLE IV

Number of calls per
telephone 1970-71

Country	No. of calls
Sweden	1215
Denmark	1130
USA *	970
Netherlands	812
U.K.	690
France	459

* Refers only to American Telephone & Telegraph (AT & T).

Source: Computers and Telecommunication: OECD 1973.

In contrast in India, even the number of calls allowed free of charge per subscriber is 1,000 per year. The actual usage is bound to be much higher.

All these factors, therefore, call not only for the adaptation and modification of the existing systems but also for the design, development and testing of new systems in the Indian environment. This calls for sustained R and D efforts and a start has been made in the country.

For example, there has been a lot of effort put in the area of subscriber and switching equipment. The Telecommunication Research Centre (TRC) undertook a project on the crossbar exchanges, the Indian Crossbar Project, which resulted in an improved version of the crossbar equipment suited to Indian conditions. This project has been successfully transferred to production stage at the Indian Telephone Industries which installed and tested a local exchange, incorporating the developments made at TRC, at Janpath in late 1978. The Indian Crossbar Project thus seems to have made a successful transition from the design and development stage to the production and installation stage.

Research and Development in the area of telephone switching and transmission systems has been done not only with respect to the existing systems but also with respect to the future generations of systems. It is now quite clear that Electronic Switching Systems (ESS) have a definite edge over the existing electromechanical systems as far as technology and economy are concerned. Electronic Switching Systems need only a fraction of the floor space of their mechanical equivalent and therefore, in some cases, a large expansion in switching capacity can take place from existing exchanges without additional capital expenditure in terms of buildings and so on. Work has been going on at TRC and ITI on ESS. Based on the design developed at TRC, ITI manufactured the hardware for a 1000-line exchange under installation at Rajouri Garden. The central processor for this system was developed by Bharat Electronics Ltd.

In addition ITI has been manufacturing small electronic exchanges, including PAXs of capacity from 10 to 50 lines. Also an electronic PABX of 50 lines capacity has been designed and manufactured by ITI. Thus a start has been made in the design and production aspects of electronic exchanges and a factory at Palghat devoted exclusively to the manufacture of ESS has come under ITI.

However, there are two disquieting aspects with respect to the large scale production of ESS. One relates to the availability of good components at reasonable prices, which we have already touched upon. Currently ITI has to import a major portion of the semiconductor devices that go into the production of the electronic exchanges. In 1978-79, the value of raw materails and spare parts which were imported constituted about 24.5 per cent of the total value of all the raw materials and spare parts that were consumed by all units of ITI.

This again points to the very critical role of the components sector. Components are critical in all aspects of electronics: in telecommunications, computers, control instruments and aerospace and defence electronics. Both in the switching and transmission sections of the telecommunication sector, the ready availability of reliable components is quite crucial. Without this it will be difficult to translate into reality the results of the R & D that has already been done by our engineers and scientists.

This should not be taken as a reflection on the operation of ITI. It reflects on the failure of our electronics policy so far.

The second aspect refers to the tendency on the part of some sectors of the Indian electronics industry—both in the private and public sector—to go for foreign collaboration even in respect of technologies and systems that may have been already developed in India. This is quite harmful to the development of the industry in India and we shall elaborate on this matter in the last part of this series. Enough to mention here the proposal by the Maharashtra Electronics Corporation, Limited MELTRON, to look for foreign collaboration for the production of electronic PABXs in India.

Transmission is another area of the telecommunication industry which is undergoing profound changes. Digital transmission—the PCM (Pulse Coded Modulation) technique—is the future in the industry. Its advantages are quite overwhelming. However, for the past half a century, analog transmission and FDM (Frequency Division Multiplex) have dominated the industry in the West and billions of dollars have been invested in the system. Till these investments have fully returned the capital expenditure already spent, there will be a disincentive to go into digital transmission. As an OECD report puts it: "depreciation patterns may cover periods upto 20 years. Consequently many new facilities already commercially available cannot be expected to be publicly available before 1990." The same view is shared by James Martin, a long time American specialist in the communication field, who has stated that. "It will be a decade, before the majority of the Bell System is digital because the vast investment in analog plant cannot be abandoned." (1976).

Here our position—characterised by low telephone density and relatively low committed investments in switching and transmission equipments—could be a blessing if proper steps are taken with regard to the future growth of the industry. Here too a start has been made in developing a base in the PCM technology. ITI has developed already digital transmission equipment, including 24/30 channel PCM equipment and 120 channel digital multiplex equipment.

In the area of wireless communication also there has been a great deal of progress. Much of the wireless communication requirements of the Indian Army are met by indigenous production. BEL is the major supplior of such equipment and it has been supplying these items to other countries as well. BEL has also designed and developed communication equipment in the LF/MF/HF/UHF ranges for a wide variety of uses from MF transmitters for the Civil Aviation Department to V/UHF ground stations for the Air Force. There is, however, a great demand for HF/VHF/UHF wireless communication equipment for civilian uses. The major consumers are the Police, Railways, Fire and Ambulance services and other such organisations. The Planning Commission Working Group on Electronic Industry had indicated a demand of the order of Rs. 1,600 millions for telecommunication equipment from the Ministry of Home Affairs and Railways.

However, on account of capacity limitations, BEL has not been able to supply fully the demands of the police and other services. This non-availability of equipment could have been solved by: (a) imports or (b) expansion of BEL capacity or (c) licensing of new additional units, say the State Electronic Corporations, to produce under licence from BEL.

Instead of choosing either of the options (b) or (c), licences have been granted to some State Electronic Corporations to manufacture wireless sets in collaboration with foreign firms. Thus we have a situation where a number of these State Electronic Corporations, the West Bengal Electronic Development Corporation in collaboration with Philips, the Punjab Government in collaboration with Repco and the Maharashtra- Electronics Corporation (MELTRON) in collaboration with Storno are all trying to produce equipment for which the basic knowhow is already available in the country.

CSO: 5500

GIANT MICROWAVE PROJECT FOR SOUTH APPROVED

Madras THE HINDU in English 12 Feb 80 p 13

[Text] Madras, Feb. 11. A giant microwave project for the South involving a total expenditure of about Rs. 54 crores has been approved by the Union Communications Ministry. This includes three more 1,800-channel wideband and 18 narrow band with 300 channel capacity and would be commissioned in the near future, according to Mr A. V. S. Mani, General Manager, Telecom Projects, Southern Region, Madras.

Reviewing the achievements of the circle in the development of telecommunication facilities in Andhra Pradesh, Tamil Nadu, Karnataka and Kerala, Mr Mani told newsmen here on Monday that of these, two schemes viz, Madras-Nellore-Vijayawada-Vishakapattinam-Cuttack-Calcutta- and Bangalore-Guntakal-Raichur-Hyderabad-Nagpur were in the final stages of sanction.

The third scheme linking Madras, Salem, Tiruchi, Madural, Rameswaram and Colombo was in the advanced stage of execution. The scheme includes a spur line connecting Madras, Salem, Coimbatore and Ernakulam. The equipment for this was imported from Japan and formed 20 percent of the project costs. The route would be commissioned in 1980-81.

The 18 narrow band microwave schemes would connect the following routes: Coimbatore-Mettupalayam, Madurai-Karaikudi, Coimbatore-Pollachi-Udumalpet, Udumalpet-Palani and Ooty-Coonoor (Tamil Nadu); Ernakulam-Irinjaiakuda, Ernakulam--Alwaye, Calicut-Manjeri, Calicut-Tirur-Ponnani (In Kerala); Belgaum-Bijapur-Shlapur, Mysore-Mercara, Bangalore-Kolar, Mangalore-Udipi-Coondapur, Bangalore-Hassan-Chickmagalur-Shimoga (in Karnataka). In Andhra, links would be provided among Visakhapattinam-Koraput, Guntur-Sattanapalli, Guntur-Ponur-Bapatla and Secunderabad-Gulgarga.

Small Towns To Be Covered

In addition, ultra high frequency (UHF) microwave schemes of smaller capacity (60 high grade circuits) to cover smaller towns would be taken up. It was planned to execute 35 schemes in the south: eight each in Andhra Pradesh and Kerala, nine in Tamil Nadu and 10 in Karnataka.

The system link between Tiruchi and Pudukottai, Trichur and Kunnamkulam and Mangalore and Kudremukh would be completed in the next three months. Another route between Kurnool and Nandyal would be commissioned in six months. Ten additional routes would be commissioned during 1981 for which radio equipment import had been ordered.

There was considerable expansion in coaxial network and a Rs 8-crore project with 600 high grade circuits linking Bangalore-Anantapur-Guntakal-Kurnool-Secunderabad had been completed, Mr Mani said. This provide new STD services in the area progressively in the next two years. [as printed]

Three more coaxial cable projects had been sanctioned which involved an expenditure of Rs 10.5 crores. The scheme included the Madras-Calcutta expansion scheme at a cost of Rs five crores. Between 1980 and 85, other areas like Coimbatore, Salem, Erode, Tiruchemgode, Erode, Bhavani, Salem, Rasipur, Namakkal would be completed.

Six new projects costing about Rs nine crores had been approved and the scheme would cover projects in all the four States in the region.

Three more STD routes linking Ongole, Palakol and Masulipattinam would be inaugurated this week. Point-to-point STD would be introduced in 1980-1981. The places connected would be Anantapur and Vizianagaram (in Andhra Pradesh), Pudukkottai (in Tamil Nadu), Neyyantankarai (in Kerala) and Bellary and Bhadravathi (in Karnataka).

Mr Mani said that of the 17 trunk automatic exchanges in the country, there were seven in the region and the eighth would be set up in Madurai. It would be commissioned in August.

Remarkable Progress

About 50 percent of the country's coaxial network of 14,081 km. was in the south. Remarkable progress had also been achieved in establishing a well knit STD network. For example, a subscriber from Madras could dial 66 stations. Out of 172 STD stations 59 were located in the south.

In the first ten months of April 1979 to January 1980, 10,000 lines and eight STD routes had been completed. By the end of February 7,400 more lines of the main automatic exchanges including expansions would be completed in the four southern states.

Seven projects of conversion from manual to automatic exchanges at a total cost of Rs 4.3 crores had been launched and work at Pondicherry had started and completed in 18 months.

CSO: 5500

NATIONWIDE TV POSSIBLE IN A YEAR

Madras THE HINDU in English 10 Feb 80 p 1

[Text] Madras, Feb. 9. Television viewers in the country will be able to watch programmes from all centres by mid-1981, once India's own communication satellite INSAT 1-A goes into orbit.

This will be possible by bouncing off messages from the satellite, which will be launched by NASA, making India one of the few countries to have its own satellite.

Mr K. C. Ramadoss, General Manager, Telecommunications (Maintenance), Southern Region, told newsmen on Saturday at the Satellite Earth Station, Chingleput, 55 km. south of Madras that the programmes could either be received by the earth station and relayed to the TV centre, or received directly by the TV centre.

The centre located in red-brick buildings, and hemmed in by hills, is in operational stage. Some more equipment will be added once the satellite goes into orbit. A huge parabolic antenna beams the messages to the satellite, and receives other messages sent by different stations. In addition, a three-metre antenna has also been fitted atop a 90-metre tower known as the 'rearward' microwave link which receives the pulses and relays them to the telephone exchange in Madras.

CSO: 5500

BRIEFS

SATELLITE STATION--The Government is considering setting up an earth station for satellite communication near Bhopal, according to the general manager of Telecommunications, Mr A. S. Wakhle. He said the station would meet defence and meteorological needs.--UNI. [Text] [Calcutta THE STATESMAN in English 12 Feb 80 p 7]

CSO: 5500

CZECHOSLOVAKIA

BRIEFS

NEW RADIO-RELAY LINE--The Southern Radio-relay Line Bratislava-Nitra-Kosice, which will insure--among other things--also a two-way exchange of international television programs between Bratislava and Uzhorod, went into operation on 28 February. Among those attending the opening ceremony was Mr Kaitoo, vice president of the Japanese NEC Company. [AU050913 Bratislava PRAVDA in Slovak 29 Mar 80 p 2 AU]

CSO: 5500

BRIEFS

LITERACY COMMUNICATIONS NETWORK INAUGURATED--A communications network with headquarters in Managua began operating today to maintain direct contact with the literacy brigades which are getting ready for the great literacy campaign scheduled to begin on 24 March. In this way the coordinating general secretariat of the crusade, in which more than 200,000 volunteer teachers will participate, will be kept informed of the latest preparations as well as the development of the literacy campaign throughout the country. Priest Fernando Cardenal, coordinator general of the campaign, charged that small groups opposed to the revolutionary process have started rumors of the presmed dangers which would befall the literacy brigades. In Managua a rumor circulated that the brigade members owuld be attacked by counterrevolutionaries, which Cardenal labeled as ridiculous. In the rural areas, the Sandinist People's Army will provide assistance to the teachers through their knowledge of the area. [Text] [PA121350 Managua Domestic Service in Spanish 0200 GMT 12 Mar 80 PA]

'RADIO SANDINO' INTERNATIONAL AUDIENCE--Reports received from listeners abroad, especially from Central American countries, indicate that there is an increasing interest in Latin America and the world in the proces of change that is underway in Nicaragua. Our writers indicate a preference for the Atabal Sandinista cast at 2100, which is our most complete evening newscast. Our correspondence also shows great interest in the international news summary broadcast at 2330. In response to the interest of listeners abroad, RADIO SANDINO has begun to broadcast the program "Hablan Nuestros Dirigentes" at 2300 with speeches made by the leaders of the revolution. The Nicaragua revolutionary process is at present the object of great international attention. [Text] [PA122314 Managua Radio Sandino in Spanish 1800 GMT 12 Mar 80 PA]

CSO: 5500

LEBANON

MINISTER ANNOUNCES INSTALLATION OF 27,000 TELEPHONE LINES IN 1980

Beirut L'ORIENT-LE JOUR in French 9 Jan 80 p 2

[Report on 8 January press conference of Michel Murr, minister of post, telegraph and telephone]

[Text] At a press conference yesterday, Michel Murr, minister of post, telegraph and telephone, announced the installation of 27,000 new telephone lines in 1980.

Murr said that 7,000 telephone lines were installed in 1979, compared with 2,200 in 1977, 2,890 in 1975 and 3,200 in 1974. He emphasized that his ministry is sparing no effort to meet the applications of citizens on the waiting list who wish to obtain telephone lines. Such applications total 45,000. "Priority will be given, in order of preference, to official departments, the diplomatic corps, ministers, deputies and party leaders, directors general, higher army officers, hospitals, doctors, pharmacies, universities, schools, newspapers, newsmen and press agencies, political parties and associations, banking establishments, businesses and tourist enterprises, and offices of members of the liberal professions (lawyers, engineers and accountants)."

The minister then announced the establishment, on 22 January, of a central service for repair of the telephone system. He stated that personnel would provide around-the-clock service and repair lines within 24 hours in the case of routine breakdowns and 72 hours in the case of serious problems occurring in underground cables.

Murr then described the program scheduled for 1980. He said that modern electronic equipment will be put into service in January and February and added that the central repair department will receive part of the equipment.

The minister also said that electronic centrals will be installed in Ras el-Nabeh, Nahr, Palais de Justice, Bir Hassan, Hammana and Sin el-Fil. A large number of telephone lines will be installed in March and April in Chebaniyeh (600 lines), Bir Hassan-Chyah (2,000 lines), Hazmieh (1,000 lines), Nahr Ibrahim (600 lines), Achrafieh (1,000 lines), Mazraa (1,000 lines), and Jounieh (1,000 lines). In addition, contracts will be awarded for the installation of the electronic telex with a capacity of 6,000 lines.

Finally, Murr said that telephone rates have remained unchanged since 1954, at 300 LL [Lebanese pounds] a year.

11,464
CSO: 5500

MOROCCO

BRIEFS

NEW REGIONAL TRANSMITTER--Dakhlah--The Moroccan Radio and Television Regional Broadcasting Station in the town of Dakhlah began transmitting on the occasion of throne day. Transmission began with the national anthem which was broadcast throughout the region. Dakhlah Radio also linked with the Central Radio in Rabat, thus enabling citizens in Wadi ad-Dahab (Rion de Oro) region to listen directly to His Majesty's speech on Monday morning from Marpakesh on the occasion of throne day. [LD061120 Rabat MAP in Arabic 0900 GMT 5 Mar 80 LD]

CSO: 5500

BRIEFS

ZAIRE-CONGO TELECOMMUNICATIONS LINK--Kinshasa, 4 Mar (AZAP)--A mission of the Congolese Ministry of Posts and Telecommunications, led by Mr Raymond Ombaka, advisor to the above ministry, has arrived in Kinshasa today to examine the progress achieved in work on the semi-direct space link [liaison spatiale semi-directe] between Kinshasa and Brazzaville. The line, which should have been inaugurated last January, will not be operational until April, for technical reasons. The mission is scheduled to return to Brazzaville on Thursday. [Text] [AB062215 Kinshasa AZAP in French 1403 GMT 5 Mar 80 AB]

CSO: 5500

BRIEFS

NEW BOPHUTHATSWANA TRANSMITTER--Mmabatho--Radio Bophuthatswana's medium wave transmitter is soon expected to capture listeners in the Witwatersrand complex. The Director of Radio Bophuthatswana, Mr J A Ackerman, said the $500,000 transmitter was expected to cover the whole of South Africa by night and the Pretoria-Vaal complex by day. Installation was expected to commence next week and the transmitter was expected to go on the air by the end of April. He said it would also help their existing FM transmitters which had a short radius range.--SAPA [Text] [Johannesburg THE CITIZEN in English 3 Mar 80 p 5]

CSO: 5500

BRIEFS

CHECHENO-INGUSHETIA TELEVISION--Groznyy, 3 Mar--The residents of all rayons of Checheno-Ingushetia can now watch television programs. One more relay station serving the steppe zone of the autonomous republic was commissioned recently. With its help screens have lit up in the homes of residents of the rayon center Znamenskoye and the villages of Bratskoye, Benoyyurt and others. [Text] [LD101115 Moscow PRAVDA in Russian 4 Mar 80 p 3 LD]

CSO: 5500

LAUNCH OF FRANCO-GERMAN TV SATELLITE PLANNED FOR 1983

Frankfurt/Main FRANKFURTER RUNDSCHAU in German 6 Feb 80 p 13

[Article by Hans Jochen Kaffsack: "Great Expectations in the 'TV-Sat'"]

[Text] When German TV viewers are sprayed with satellite waves at the end of the 1980's, the industry will also be hoping for a better picture--on balance. "We are expecting a truly new market; and with that a big boost in exports," said Johannes Schubert, the director of the space division of Messerschmitt-Boelkow-Blohm (MBB) in Ottobrunn near Munich. Four German and French major firms with experience in communications technology and space travel are presently working on the radio and television satellite "TV-Sat," two of which are to be launched in 1983 and 1984 and then are supposed to become Europe's sales hit in the satellite age.

"But the development of the Airbus showed that Europe has to be far ahead or else we will be hanged," reflected Schubert. After some initial enthusiasm "2 years were wasted in a typical German way," following a technical lead, especially by the Germans, in the TV satellites with five channels which were ordered by the Research Ministry in Bonn. The engineer estimated that each land "will want to buy a satellite" sooner or later now that the Wavelength Conference WARC in Geneva ratified a proposal in 1977 allowing all nations to operate direct television systems without large transmitter poles from an altitude of 36,000 kilometers.

France and the FRG want first to refine their agreement on a common European consortium of firms for construction of the TV-Sat. Schubert dislikes talking about the costs until the time of launching but he also did not discount a figure of DM 250 million. Already at the beginning of the 1970's, preliminary work on 1,760 kilogram "TV-Sat," which should occupy a position at 19° West in the skies, was started. Dividing the "working package" is still an open question but on the German side AEG-Telefunken is already in the party for communications technology. The aim: Inexpensive television for the operators.

The European rocket Ariane is to launch the innovative television transmitter into its geostationary position from French Guyana. In 2 years of "preoperational" tests, 10,000 West German television sets with ARD and ZDF programing and stereo radio are supposed to receive these satellite signals on three channels. But according to Schubert, the schedule as it now stands "requires a lot of hard work" if another satellite with more solar cell energy to be launched in 1985 is supposed to bring undisturbed television viewing to all German TV sets. "Because the public institutions now hardly own five channels," Schubert sees private TV as the main user.

9527
CSO: 5500

TELECOMMUNICATIONS CHIEF DESCRIBES DEVELOPMENT PLAN FOR EIGHTIES

Copenhagen BERLINGSKE TIDENDE in Danish 16 Dec 79 pt III p 3

[Article by Lisbeth Nebelong: "On the Threshold of the Technological Revolution: The TV Screen Will Be the Eighties Secretary and the Nineties Domestic Help"]

[Text] The keywords for the new society that will take shape in the eighties--and for the remainder of this century--will be "information" and "communication." The instrument will be modern technology, which has been progressing at a constantly increasing rate in recent decades.

The 1980's will be the decade when technology enters our working life in a big way. And it will be the decade in which everyone will acquire a new status symbol, the TV screen. It won't be a status symbol in the present-day sense of the word, but the authoritative medium of communications for all areas except those where the "direct word-of-mouth" method will continue unassailed.

The Post and Telegraph Service is counting on the data network's being ready to go into operation by spring. The data network will operate in the same way the telephone system does and will be connected to data networks in other countries. Calls can be placed through a central data office to the desired processor or data bank, and information transmitted and received at a rapid rate without the risk of the interference and disconnections encountered when communicating over the telephone network.

Teletex

And in 1983, according to P&T marketing chief J.F. Pedersen, we will be ready to go with a telecommunications service that will be the first step toward the office of the future. "Teletex" consists of a network component and a terminal component and is comparable to Telex. Except that Teletex is 30 times as fast. What might take several minutes to send by Telex can be sent in 10 seconds by Teletex, in accordance with the latter's approximately 8.3 X 11.7-inch page format. Teletex also provides many more characters and has both capital and lower-case letters like those on a typewriter. Regular business letters can be composed on Teletex, which will be capable of replacing the post office system for some business correspondence at least.

Pedersen estimates that about 25 percent of all the mail service will soon be replaced by "electronic mail" via Teletex. One example: bids from a business in Denmark to one in a foreign country will be typed onto a screen and transmitted shortly thereafter to the foreign recipient. The recipient can look over the bid and decide what to order. He can then make use of the information he receives to place his order, using the same basic data and sending it back. Once the Danish firm has received the message, it can confirm the order by sending the data back a third time.

Teletex will also, along with other systems being introduced in the eighties, save businesses a lot of unnecessary telephone calls. Pedersen believes that between 50 and 75 percent of all calls at the highest level are wasted, either because the executive is in a meeting and can't be reached or because he is on another line. In the office of the future, messages will be recorded on a sort of advance dictating machine, from which the recipient may select messages to be played back in the sequence and to the extend he or she desires. At the same time it will be common to send part of one's internal and external messages over Teletex. And eventually there will even be conference calls.

Teleconferences

"With the steadily climbing costs of transportation it will become desirable to cut down on travel as much as possible," says Pedersen. "Once we have thenecessary equipment, and we're working on it now, along with the telephone manufacturers, conference calls will be capable of replacing as much as 40 percent of all live meetings. Business executives can stay in their office and still "meet" with other executives around the world by telecommunication. Sketches, plans, and drawings, done during the meeting can be transmitted in seconds by facsimile--telecopying--to the individual participants."

Pedersen does not believe that the new technology will result in unemployment within the P&T. Rather, it will provide rationalized everyday on-the-job assistance and save society time and money.

Even if some mail is replaced by electronic correspondence, we still won't be able to do without it entirely, because the need to communicate will continue to grow.

Altered Work Styles

The Danish Employers' Association doesn't believe in Technological unemployment either. On the contrary, at one recent conference on the office of the future, arranged by the telephone company, one office head, K.E. Linius, an M.A. in economics, said that there have been no examples up to now of people losing their jobs when new technology was introduced.

"Maybe the nature of a certain job changes, like the blacksmith's job changed when machinery was introduced, but no one was deprived of employment for that reason. On the contrary, there is often more work. And if we look toward the past we will see that progress has until now proceeded in the direction of all new technology increasing employment. Economic production increases with new technology, so that there is always a need for more labor."

The labor movement's view of the new technology is not quite as rosy. C. Bernhard Andersen, secretary of working environment for the Federation of Commercial and Office Workers, said at the same conference that he thinks the new technology will make people's work less exciting.

"The machines are making hundreds of thousands of human jobs monotonous and boring. We will become slaves to the machines, and humans will have to adapt or be thrown out into the cold. And who is going to pay for the people whose lives are destroyed because they lose their jobs? Society will. These developments are in my opinion being taken care of only by technologists working closely with employers and capitalist interests. Their only motive is greater profits, and the public will have to pay for the support of anyone replaced by a machine."

Andersen does not reject the new technology, but he appeals earnestly to engineers and other experts to keep politicians and wage earners informed and let them know when the new technology will be introduced.

The Need for Sound Management

"It is you and your advice that will make the difference between these developments being positive or ending up in a catastrophe. You have really been good about keeping business informed, and it is high time to extend your advice to society and the politicians. The engineers must not become technocrats. They must see things through society's eyes if things are to go right."

A catastrophe is also predicted in a report recently published by the European Trade Union Institute, if these developments are not kept under control. "The negative effects of technology on employment are already evident in many industries, including those producing clocks and watches, cash registers, and office and telecommunications equipment. And advertising and banking have also had problems," says the report.

"Only if governments intervene can increases in the unemployment level already caused by the revolution in technology be prevented. Unemployment will increase in the West European nations if there is no change in their governments' political will to follow a policy of decreasing unemployment and utilizing the extra resources that technological change will bring about to improve the quality of employment and life," the report concludes.

[illegible]
CSO: 5500

BRIEFS

TRANSMITTER POWER INCREASE--The CGT [General Confederation of Labor] wants to push the development of its free radio transmitters. It is going to increase the power of its Lorraine-Coeur-d'Acier radio transmitter located in Longwy [Meurthe-et-Moselle Department]. [Text] [Paris LE POINT in French 25 Feb 80 p 32]

CSO: 5500

STATISTICS, ANALYSIS ON TELECOMMUNICATIONS GROWTH REPORTED

Athens BUSINESS & FINANCE in English 9 Feb 80 pp 6-17

[Text]

The supply of telecommunication equipment in Greece is largely satisfied by imports which mainly come from West Germany, Italy, the US, and some Far Eastern countries. The survey below looks at the general situation regarding the supply of equipment and the major purchasers in Greece. Separate sections look at the importance of the shipping side, the import statistics and the growing position of Greece as a regional telecommunications and transport centre in the Eastern Mediterranean.

INDUSTRY sources estimate that the Greek market for telecommunication equipment has been growing over the last few years at an average rate of around 20 percent per annum. This compares with a rate of growth of around 15 percent about 5 years ago and indicates that the market has been expanding significantly in the last half of the 1970s.

The market in 1976 was estimated at just over 2,000 million drachmas while today it is probably well over twice that figure. It is as well to refer to these figures in general terms since the import statistics available must be examined in the light of the fact that much telecommunication equipment entering the country, and these imports probably satisfy about 80 percent of local demand, are often classified under a variety of headings. For example items for use by the armed forces, which represents one of the major markets for such equipment in Greece, may be loosely classified under 'military transport equipment' while there is also often only a small difference between communications, data processing and strictly telecommunications equipment.

Thus figures must necessarily be vague but regardless of this it is clear that growth rates in the last few years have been high.

The most active sector of the market seems to be more conventional types of equipment such as telephone and telegraph aparatus where European manufactured equipment has been particularly successful. In this area the appearance of lower cost East European equipment is also a feature of the last few years. For the US suppliers the important sector has in the past been in data communications equipment, though again in this sector information is scant on the scale of installed equipment in Greece.

Local activity

Despite the fact that there is obviously a high degree of technology in the telecommunications equipment field, there is a surprisingly high level of local assembly and manufacture in the sector. It is estimated (again by market sources) that domestic production accounts for around 20 percent of the market in Greece. Locally assembled units are particularly common in the telephone and telegraph sectors.

The fragmented nature of the domestic industry makes it virtually impossible to analyse it in any detail though it can be said in general terms that local production is mainly of the consumer type electric and electronic equipment (televisions etc)

Major sector

As noted above, the largest single sector in the wide area of telecommunications equipment in Greece is probably that of telephone and telegraph equipment.

The review of Greece's importance as a regional centre which appears on page 10 gives some information on the current situation regarding the installation of telephones and telephone centres in Greece and growth rates for each in past years have been put at 12 percent for automatic and manual telephones and around 5 percent for all types of telephone centres. The low figure for telephone centre installation must be seen in the light of an increasing rate of installation of automatic types and nil growth rate for the manually operated centres.

The main suppliers in this sector seem to be located in West Germany and Japan, though as is pointed out in the statistical summary (see page 14) much of the West German equipment is produced by the subsidiary operation of a major US company (ITT). Local production of telephone and telegraph equipment is largely in the hands of Siemens, Philips and Standard Electric Hellas (an ITT subsidiary).

Broadcasting and transmission

In the sector of broadcasting equipment the fact that only a few government agencies and a very few private companies are entitled to broadcast necessarily limits this part of the market. Major buyers in this area are the Armed Forces, the (state owned) broadcasting corporations, and the Police and Fire Brigade and in investigating these areas it must be borne in mind that their purchases are made with an exemption on import duties.

As far as state broadcasting is concerned the equipment supplied for the setting up of the existing two television channels came from the Marconi company (for the ERT station) and the Rohde, Schwarze and Page company (for the YENED station).

The shipping industry also represents an important outlet for this type of equipment (the shipping sector is analysed in greater detail on page 8) and again the peculiarity in this market is that shipowners (and in fact also air companies) can purchase their requirements on a duty free basis as goods in transit.

The sector of alarm and signalling equipment, while not being of great importance at present, may well in the future become more so as stricter government rules and regulations are introduced concerning fire prevention. Thus the market may grow to cover not only the existing major buyers (the Public Power Corporation and various Civil Service organisations) but also the private sector.

ELVIL

While imports of telecommunications equipment of all types have been increasing steadily over the last few years, 1985 could well see a major change in the source of supply of equipment to the Greek Telecommunications Organisation OTE. In 1977 an independent company was established in Greece called ELVIL as a joint venture between the Hellenic Industrial Development Bank and OTE. The aims of the new company are to supply OTE's requirements in several areas, in particular electronic and semi-electronic exchanges and pulse code modulation transmission systems which are due to replace the older and widely diverse equipment currently in use by OTE. OTE currently purchases its equipment requirements through international tenders and apart from the long time necessary to go through the government machinery, this system also causes complications as a result of the wide spread of different types of equipment installed. At present OTE has eleven different types of automatic exchange equipment and this obviously gives rise to considerable maintenance and spare parts problems.

It is expected that the ELVIL manufacturing facilities will be on stream by 1985 producing a universal type of equipment .

Naturally the appearance of ELVIL as the only major supplier to OTE, and presumably a significant supplier to other important state agencies, will significantly effect the activities of the current importers. The overall effect cannot be gauged acurately until further and more detailed information materialises concerning ELVIL's activities.

Public sector demand

By far the largest purchaser of telecommunications equipment in Greece is the state, and in particular OTE, the Armed Forces, and the Public Power Corporation. Smaller but also significant purchases are made by the Ministry of Merchant Marine and (for alarm and signalling equipment) the police, fire brigade and similar organisations. Demand from the private sector largely revolves around data communications equipment and, to a lesser extent, telephone and telegraph equipment.

The public sector's requirements are obtained through tenders put out by the Ministry of Commerce and in recent years the level of OTE's requirements have represented around 70 per cent of the purchases of the Ministry for state organisations. Over the last few years, realising the importance of not spreading its source of supply for telecomminications equipment, OTE has tended to deal with the three major companies represented in Greece, Siemens, Philips and ITT.

The second major state purchaser of all types of equipment is the Public Power Corporation, whose expansion plans will probably ensure a high demand in the next few years. Fuller details of these plans can be found in the B&F survey on Greek energy resources which appeared in issue No. 25.

Shipping Sector

ONE of the most promising sectors of the market for telecommunications equipment in Greece is the shipping industry where a swelling fleet and increasing safety standards provides a ready outlet for many types of communications equipment.

Apart from the shipowners themselves, however, the shipping industry also offers openings for suppliers of radiotelephone, radiotelegraph, VHF and similar types of equipment for Coast Guard stations and ship-to-shore connections in general.

Greece presently operates a widespread network of coastal stations to service the requirements of its own and other fleets. The main coastal station is situated at Loutsa and caters for telegraph and telephone communications with vessels anywhere in the world. This powerful ship-to-shore service in 1977 handled 300,000 telephone and 920,000 telegram connections. Greece also operates 20 other major coastal VHF radio stations and a further five regional medium wave stations located at Heraklion (in Crete), Rhodes, Chios, Corfu and Lemnos. The volume of traffic handled by these radiotelegraph and radiotelephone coastal stations in 1977 totalled nearly 1 million radiotelegrams and over 700,000 radiocalls.

Looking at new developments in this sector, the three major projects in hand are the installation of 50 million drachmas worth of transmitting and receiving equipment for the Heraklion coastal station on Crete, the introduction of a second world-wide short wave coastal station in the southern part of the Peloponnese at a cost of some 700 million drachmas; and Greece's involvement in the new international satellite system Inmarsat.

Anti-collision systems

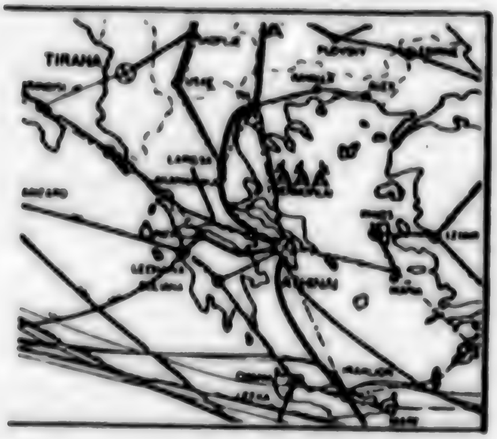
The Greek shipowners themselves must also install a good deal of further safety-related telecommunications equipment in the next few years, particularly in the new-buildings sector. Perhaps the most important factor in this area involves the implementation of the Solas Convention (specifically Regulation 12 Chapter V) and the installation of Automatic Radar Plotting Aids (ARPA).

According to the Convention, each ship of 10,000 grt or more, the keel of which is laid or is in a similar stage of construction on or after 1 January 1983 must have an ARPA installed. The same applies to existing tankers of 40,000 grt or more from 1 January 1983, to existing tankers of 10,000 grt or more from 1 January 1984, and to other ships of 10,000 grt or more from 1 July 1985.

Bouyant market

The rapidly increasing size of the Greek fleet (by the end of last year it had grown to become the world's third largest with over 37.3 grt and was approaching the Japanese fleet in size) would indicate that on new acquisitions alone, the next few years will see an increased call for ARPA and similar equipment from Piraeus. The stricter implementation of safety rules and regulations by both the Greek Ministry of Merchant Marine and the international organisations such as IMCO and UNCTAD will only serve to increase the size of this bouyant market.

Country As Regional Center



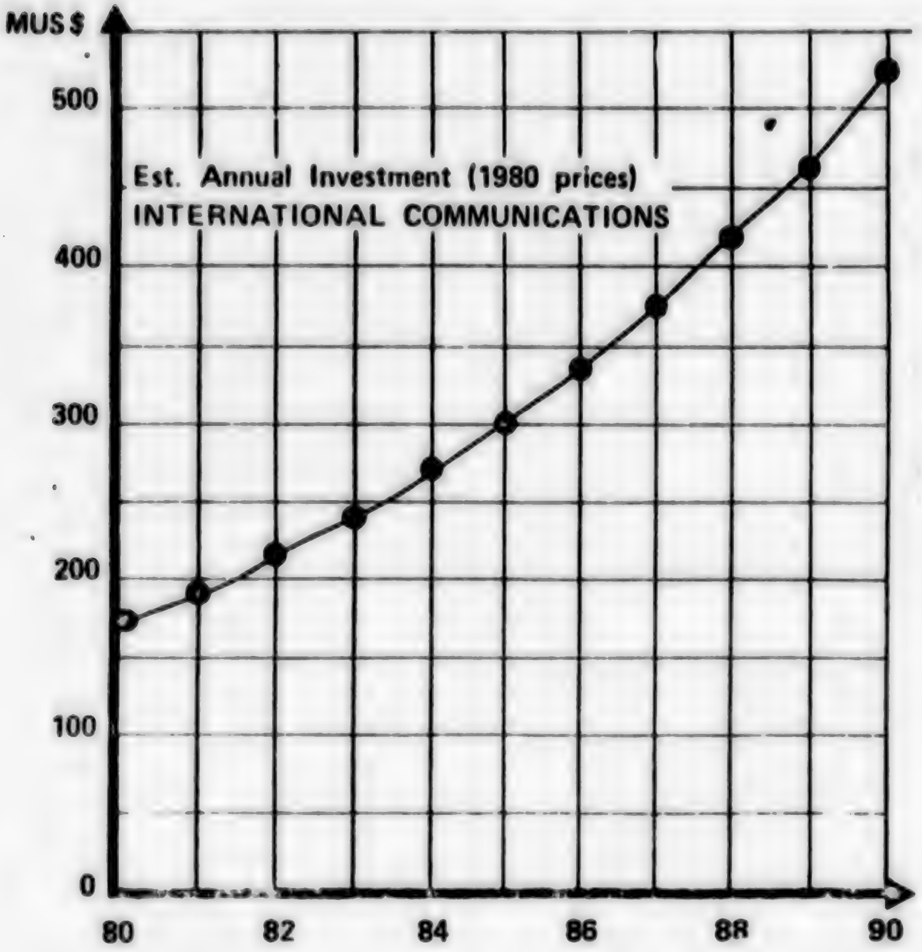
THE promotion of Greece as a transport and communications centre has in recent years been an increasingly important policy of the Greek government and it is interesting to see just how well-connected the country is with countries abroad and more particularly in the context of the development of telecommunications systems linking Europe and the Balkans to North Africa and the Middle East.

EC background

As a background to this development, however, it is as well to note activity within the European Community regarding a recently launched initiative to try and capture a greater share of the world's telecommunications market by the end of the decade.

A document setting out the strategy to be followed was submitted to the European Summit meeting in Dublin at the end of November last year. This was briefly examined by the nine Heads of State and Government who have now referred it to their ministers to try and agree on a strategy that will ensure European companies a share of the growing number of orders in the face of American and Japanese competition.

Europe already provides one third of estimated $35 billion world market for telecommunications equipment, which is currently growing at a rate of 7% per year. At the same time, almost one third of the $60 billion market for computers and one quarter of the $55 billion market for components is supplied by European companies.



Systems	Capital costs in MUS $ (1975 values)		
	1990	1985	1980
International switching	885	487	245
Transmission (mandatory)	1103	650	359
Transmission (new)	764	441	293
Total	2752	1578	897
Total (1980 values)	4432	2541	1444
Difference (5 years)		1891	1097

In the face of tough international competition, the Commission is keen to introduce measures which will encourage the development of such companies and this is expected to lead to a spin-off in a number of other areas. The new technology would help small and medium-sized industries, say Community officials, and there would also be new communications facilities for distant regions and for the underprivileged.

The programme which the nine leaders examined in Dublin is not geared entirely to the efficiency of companies. It also examines the social and employment repercussions of this move towards more high technology industries.

Private sector investment should be encouraged, argues Viscount Davignon, the Commissioner who has drawn up the programme, and who has suggested that a European Association of Suppliers be set up.

Meanwhile, the Commission is waiting for a decision by the Nine's governments before launching specific projects aimed at the agri-business, environment and energy markets.

International telecommunications

The potential of Greece as a telecommunications (and transport) centre in the Eastern Mediterranean was highlighted last year at the first international Translink Conference and Exhibition which was held at the Hilton Hotel.

Throughout the conference it was made clear that Greece has a major part to play in the network of international telecommunications and this was underlined in addresses by the Secretary General of the International Telecommunications Union (ITU), Mr. M. Milli, and by one of the Union's Project Engineers, Mr. Lars Engval. On a regional basis Greece is a particularly active centre in the Mediterranean Basin and Middle East areas and since 1976 Athens has been the headquarters of one of the four large-scale projects backed by the ITU and involving the development of international telecommunications services. The Athens-based project involves the Middle East and Mediterranean region and some 30 countries are cooperating in the area. The work started some seven years ago and culminated in the preparation of a Master Plan on Telecommunications for the region which was in fact submitted to the ITU headquarters at the end of 1978.

As was pointed out at the Conference, Greece, with about twice as many telephone main lines per 100 population as the world average, is much ahead of most of the other countries in the project areas. The average for the whole region itself is only one quarter of the world average (see Table 1). Like so many other public utilities, the development plans in the countries therefore have an almost explosive character, a fact that is noticed in several extraordinarily ambitious investment plans in the project countries.

In the ITU's view it will not be the lack of financing in such cases that will be the main problem to be overcome, but the need to develop the necessary manpower to maintain and operate their telecommunication services.

Table 1. Details of the telecommunications scene in the countries covered by the ITU Master Plan

Country	Population ('000)	DEL *	DEL per 100 inhabitants	Telex per 10,000 inhabitants	Reference year
Algeria	17,430	173,083	0.99	0.84	77
Bahrain	297	19,411	6.54	28.45	77
Cyprus	640	56,639	8.85	16.22	77
Egypt	39,230	359,881	0.92	0.26	77
Ethiopia	29,207	59,000	0.20	0.11	77
Greece	9,250	1,888,418	20.42	8.67	77
Iraq	12,172	231,010	1.90	0.58	77
Jordan	2,732	30,000	1.10	0.22	76
Kuwait	1,129	120,000	10.63	11.47	77
Lebanon	3,300	250,000	7.58	3.5	74
Libya	2,500	100,495	4.02	1.20	77
Malta	332	41,933	12.63	9.40	77
Morocco	18,244	136,767	0.75	1.55	77
Mauritania	1,400	2,677	0.19	0.85	77
Oman	1,500	9,699	.65	2.20	77
Qatar	210	16,900	8.05	25.10	77
Saudi Arabia	9,240	141,000	1.53	0.62	77
Somalia	3,241	5,076	.16	.16	77
Sudan	16,536	43,541	.26	0.30	77
Syria	7,876	153,158	1.94	0.55	77
Tunisia	5,891	78,669	1.34	1.60	77
Turkey	42,078	851,353	2.02	0.91	77
UAE	787	48,000	6.10	10.0	77
Yemen, AR	6,700	5,500	.08	0.33	76
Yemen, PDR	1,742	7,100	.41	0.34	76
Bulgaria	8,823	693,600	7.86	4.99	77
Yugoslavia	21,718	1,259,226	5.80	3.13	77
Djibouti	109	1,637	1.50	3.85	77
Total region:	264,392	6,783,773	2.57		

* Direct Exchange Lines

Objectives of the Master Plan

The aim of the Master Plan for the region containing Greece was to design an international network for the region and define the requirements for the period 1980 to 1990. The plan covers all kinds of telecommunication services, i.e. telephone, telex, telegraph, various special services, television and broadcasting, and examines the most economical and reliable network structure as well as indicating the most appropriate choice of transmission systems.

Implementation

An implementation plan has been prepared based on a network optimisation programme developed in Brussels and work is at present under way in many parts of the network to implement those links which are either missing or have insufficient capacity. The same is valid for the international switching centres. It is planned that the complete network will be in operation for fully automatic traffic within 5 years.

The regional satellite network that has been agreed upon by the Arab league countries, ARABSAT, will form part of this international network, and be an excellent complementary means of transmission system to interlink the Arab countries, as well as having several other capabilities with regard to TV and broadcasting.

Proposed international network

The detailed requirements in international circuits for telephone traffic to all destinations of the world are included in the Master Plan document. It shows both terrestial and satellite routes. The requirements of the telex and special service circuits have been estimated on a general basis, but a detailed study for them is being undertaken at present.

Investments required

The investments required to provide the necessary telecommunication equipment to handle international traffic is of the order of 5 to 10% of the total investment required for a country's telecommunication infrastructure, the ITU estimates.

The Master Plan calculations have given an estimate of the investment needed for 1980, 1985 and 1990, based on 1975 costs for transmission systems, international switching centres, etc. They can be evaluated at 1980 costs by capitalizing the 1975 cost figures at a suitable interest rate, (say 10%). For the Master Plan calculations, the ITU has drawn up a graph (reproduced at the start of this section) showing the capital cost value of infrastructure for international telephone services.

The actual situation may of course differ from this as major investments for any country are more likely to occur at discrete years and not be distributed evenly over the years as is presumed in the ITU graph. The total figure, however, represents the total for the whole region and may therefore be realistic.

The total investment required for all telecommunication facilities of a country can be estimated by using the direct exchange lines (DEL) forecasts, considering that a total investment of, say, US $1500 per DEL will be required. Of this, only 5 to 10% will be needed for the international parts, the dominant part being needed for the local networks (switching and outside plant). Taking the forecasts of DEL from the Master Plan, the following total investment in the telecommunications sector for the ten-year period 1980 may be expected:

Arab League countries:	$20 billion
28 project countries :	$42 billion

From these figures, it may be deduced that the international part amounts to about 7%.

Forecasting problems

As the Master Plan notes, there are many factors that influence the development of telecommunications. These are of a social and economic nature as well as cultural and political. They are independent in a rather complex way and considerable effort has been made by the ITU in the study of this regional network to find the most important paramaters that influence the development of international telecommunications.

It took the ITU team a great part of the first two years to obtain statistical and other data required for preparing the forecasting methods that have been used to predict the future traffic flow from each country to all possible world destinations.

Network optimisation

A network optimisation was made on the ITU computer in Geneva where a special programme has been designed to calculate:

- the optimised network routing for direct and overflow routes
- the required number of both-way circuits for each traffic relation, indicating the exact geographical routing
- the most economical transmission systems to be used (from the possible alternatives including all known modern systems ie submarine cables, troposcatter, radio relay, coaxial cable, Intelsat, Arabsat, etc.)

A special programme also calculates the most economic combination of one-way and both-way circuits on international links.

Operational security

The network optimisation programme will specify the cheapest network based on annual costs. It will therefore not consider such methods of increasing the network reliability that can be offered by introducing diversifications, automatic rerouting, etc. This has been introduced afterwards by individual judgements for each case and after lengthy discussions with the countries concerned.

The maximum diversification used is to split a link between two destinations into five routes, each carrying 20 percent of the circuits required.

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Athens 103
Mr. Alex. Tsapidis
Tel: 8818.934 Telex: 21-5497
Represents: Subsidiary of AIWA (Japan)

OPTIKOACOUSTIKI LTD.
31-33 D. Gounari Street
Piraeus 2
Mr. Zagourakis Emmanouel
Tel: 4113.837 Telex: 21-2081

SIEMENS S.A.
7 Voulis Street
Athens 125
Mr. Letsas
Tel: 3293.212

INTELKO LTD
19 Syngrou Avenue
Athens 403
Mr. Themistoklis Theodorou
Tel: 9237.815 Telex: 21-4043
Represents: MEISEA (JAPAN), ELECTROIMTEX (Bulgary)
TELAR (Italy)

STANDARD ELECTRIC HELLAS
171 Syngrou Avenue
Athens
Mr. I. S. Papandoniou
Tel: 934 811 Telex: 21 5851 & 21-5853
Represents: ITT (U.S.A.)

TELEFEX S.A.
101 Thessalonikis Street
Moschato, Athens
Mr. Maragos
Tel: 4819.346 Telex: 21-3487
Represents: A.G.E. TELEFUNKEN (West Germany), ROBERT BOSCH (GERMANY), BOSCH FERNSEH (GERMANY), FUBA (GERMANY)

EMITRON ELECTRONICS MFG CO S.A.
140 Orfeos Street
Votanicos, Athens
Mr. Byron Serafepilides
Tel: 3469.797

K. P. LYCOUREZOS S.A
255 Syngrou Avenue
N. Smyrni, Athens
Tel: 9411.600
Ms. Savaidou
Represents: TEFLA (Czechoslovakia), CIT-ALCATEL (France).

GEORGE ZARDALIDES
101 Third Septemvriou & 30 Kodrigtonos Strs.
Athens 104
Tel: 8227.859
Represents: TELE/RESOURCES (U.S.A.)

F. & A. KATSAMENIS
12-14 Kar. Servias Street
Athens 125
Tel: 3228.871
Represents: PHONEMATE (U.S.A.), CODEPHONE (U.S.A.) T.T. SYSTEM (U.S.A.).

Trade Sector

Approximately 75 percent of Greece's requirements in telecommunications equipment, for both professional and consumer use, is met by imports which come from a variety of sources. The accompanying statistics show both the value of imports of telecommunication eqipment over the last few years and the major sources of supply for each category.

It can be seen that speaking generally the major suppliers of the professional type of equipment are West Germany, Italy, Japan and the UK (though it must be borne in mind when examining the figures that many of the imports listed from some European countries are in fact produced by subsidiaries of US companies established in Europe. Thus many imports to Greece from West Germany are in fact supplied by the ITT company, one of the largest US producers of telephone and telegraph equipment.

On the consumer telecommunications side the major sources of Greek supply are Japan, Hong Kong and the United States. Most of this type of equipment is made up of radios and television sets.

There is also a fair degree of export of telecommunications equipment in general with the major destinations being Western Europe, mainly West Germany and Italy, and the Middle East and Cyprus.

The largest single sector of imports in 1978 on a value basis was of telephone switchboards (total value of over 1.3 billion drachmas) of which West Germany supplied about 500 million drachmas worth, East Germany 350m million drachmas and Japan nearly 300 million drachmas.

The second largest sector concerned radios (with over 7 valves) the bulk of which equipment came from the Far East countries, notably Japan, Taiwan, Hong Kong and South Korea. The total value of such imports approached 1 billion drachmas in 1978 and the Far East countries supplied 85 percent of Greek requirements.

Another important sector of imports reflected by the figures is that of 'other telephone and telegraph equipment' supplies of which totalled just over 660 million drachmas in 1978 some 86 percent of which came from West Germany (451 million drachmas) and Italy (119 million drachmas).

The sector of spare parts for broadcasting and receiving equipment is also important to the import scene as a whole, representing in 1978 a total value of 404 million drachmas. Again West Germany (175 million drachmas) and Italy (123 million drachmas) were the major sources of supply with Holland, Japan and the USA also supplying small quantities.

Telecommunication Statistics

The following tables give a picture of the level of imports of telecommunication equipment into Greece in 1978 and for each type of equipment the five major country suppliers. The figures complement those listed on pages 16 and 17 and together give an indication of the supply situation for the year

Transceiver equipment	Value in '000 drs
USA	20,146
Japan	7,886
Italy	5,543
France	4,772
Total inc. others	58,806

Mobile radio marine equipment	Value in '000 drs
France	3,301
Japan	2,034
	—
	—
	—
Total inc. others	8,094

Electronic telecommunication equipment	Value in '000 drs
W. Germany	1,803
Italy	940
France	923
Czechoslovakia	280
USA	238
Total inc. others	4,358

Parts/accessories for broadcasting and receiving equipment	Value in '000 drs
W. Germany	174,967
Italy	122,543
Holland	29,888
Japan	29,441
USA	19,411
Total inc. others	404,158

Radio loudspeakers etc.	Value in '000 drs
Japan	48,776
Italy	15,007
USA	12,463
UK	8,428
Holland	7,415
Total inc. others	114,265

Telephone switchboards	Value in '000 drs
W. Germany	502,226
E. Germany	354,076
Japan	296,950
Holland	85,887
Romania	49,269
Total inc. others	1,332,843

Acoustic signalling equipment	Value in '000 drs
Italy	34,778
Japan	2,589
USA	2,477
W. Germany	1,898
Hong Kong	1,056
Total inc. others	46,785

Railway road electric signal equipment	Value in '000 drs
W. Germany	1,084
USA	894
Italy	844
[illegible]	–
[illegible]	–
Total inc. others	3,939

Other loudspeakers	Value in '000 drs
Japan	33,324
USA	26,524
Italy	11,931
UK	11,099
W. Germany	7,549
Total inc. others	113,452

Other wire telephone and telegraph equipment	Value in '000 drs
W. Germany	451,071
Italy	119,561
Holland	22,402
France	16,156
E. Germany	12,624
Total inc. others	662,107

Electric acoustic signalling equipment	Value in '000 drs
UK	9,823
W. Germany	5,977
Italy	3,036
E. Germany	2,104
USA	1,496
Total inc. others	26,934

Microphones & bases	Value in '000 drs
Japan	7,340
USA	4,280
W. Germany	3,853
Italy	3,467
Austria	2,020
Total inc. others	25,033

Television sets	Value in '000 drs
W. Germany	96,787
Holland	16,525
Japan	19,104
Italy	12,225
USA	5,025
Total inc. others	174,963

Broadcasting equipment	Value in '000 drs
Holland	752
–	–
–	–
–	–
–	–
Total inc. others	863

Electric audio signalling equipment	Value in '000 drs
USA	4,893
Switzerland	3,658
W. Germany	2,527
Italy	1,230
UK	891
Total inc. others	14,870

Radios ≤ 7 valves	Value in '000 drs
Hong Kong	14,447
Japan	4,268
W. Germany	2,918
China	2,756
Singapore	990
Total inc. others	27,804

Other radios	Value in '000 drs
Japan	580,425
Taiwan	144,040
Hong Kong	85,950
S. Korea	35,367
W. Germany	28,596
Total inc. others	994,276

The Greek suppliers

The profits and commissions taken by importers of telecommunications equipment in Greece varies widely. The dozen or so largest suppliers offer full and specialised service back up facilities while the remainder of suppliers more normally cover their service committments through contract service engineers.

Import duties themselves vary widely depending firstly on the type of equipment and secondly on whether the source country is an EC member or not. Non-EC produced equipment pays a higher rate of import tax. It should also be noted that the latest round of import restictions introduced by the government at the end of last year do not effect the importation of telecommunication equipment.

A further important factor affecting the supply side is that all public sector agencies except the Greek Telecommunications Organisation (OTE) and the Public Power Corporation (PPC) are exempt from paying any duties or taxes on the import of their telecommunication equipment requirements.

Import duties

As can be seen from the table above, the range of import duties (including all stamp, turnover and other taxes) which must be paid on imported equipment varies greatly and in many cases it is hard for the customs authorities to categorise such technically complex equipment for duty purposes.

The largest duties are payable on television transceiver equipment and spare parts for broadcasting and receiving equipment from non- EC sources , though the picture is very complex as far as the application of these duties is concerned.

Greece's trade in major items of telecommunication equipment 1972 to 1978

Type of equipment	1972 imports ('000 drs)	1972 exports ('000 drs)	1973 imports ('000 drs)	1973 exports ('000 drs)	1974 imports ('000 drs)	1974 exports ('000 drs)	1975 imports ('000 drs)	1975 exports ('000 drs)
Electronic telecommunication equipment	34,563	11,415	5,346	105	5,418	–	52,487	–
Telephone switchboards	137,906	–	166,306	2,912	246,367	32,968	834,654	124,454
Other wire telephone and telegraph equipment	473,144	245,051	530,601	300,689	733,342	188,887	368,851	13,712
Broadcasting equipment	9,898	–	598	–	–	–	545	–
Transceiver equipment	42,046	–	21,375	–	29,111	–	55,004	–
Mobile radio marine equipment		–	–	–	–	–	3,071	–
Parts/accessories for broadcasting and receiving equipment	355,360	696	285,951	1,321	213,179	1,315	284,705	1,723
Railway road electric signal equipment	12,513	–	11,070	–	14,864	–	10,118	–
Audio-visual electric signalling equipment	27,618	–	27,687	–	22,939	–	32,699	–
Acoustic signalling equipment	5,943	–	11,530	–	10,856	–	15,396	–
Microphones & bases	5,034	–	7,082	–	6,920	–	10,702	–
Radio loudspeakers, etc	16,548	–	27,482	–	12,998	–	23,504	–
Other loudspeakers	18,184	–	26,998	–	34,481	–	31,422	–
Low frequency electric amplifiers	29,094	–	36,639	–	37,278	–	24,636	–
Radios <7 valves	15,053	–	21,742	–	20,244	–	24,643	–
Other radios	116,876	1,540	160,122	410	189,965	–	264,393	–
Television sets	69,691	3,151	70,246	3,872	46,531	25,859	100,738	9,146

1976		1977				1978			
imports	exports	imports		exports		imports		exports	
('000 drs)		tons	'000 drs	tons	'000 drs	tons	000 drs	tons	'000 drs
27,593	–	115	129,209	–	–	4	4,358	–	280
767,135	156,137	1,642	848,301	247	211,922	14,537	1,332,844	98	136 302
200,479	33,334	500	267,957	54	44,818	795	662,107	180	192 730
4,857	–	6	15,983	–	12	–	863	–	–
59,594	1,478	26	37,664	–	–	22	58,866	–	173
5,209	–	2	1,259	–	–	3	8,904	–	–
307,134	2,047	518	353,986	85	11,183	495	404 158	178	21 863
6,850	2,036	14	11,157	1	663	5	3,939	–	–
35,321	1,027	50	30,871	2	300	82	41,804	1	322
21,189	–	132	30,396	–	415	175	46,785	–	–
13,783	–	31	19,732	–	–	25	25,033	–	–
64,567	–	65	118,093	–	–	579	114,264	–	–
25,402	–	129	27,249	–	–	522	113,452	1	197
43,376	–	147	65,021	–	39	–	–	–	1
28,163	–	115	49,270	–	30	72	27,804	–	–
554,524	–	1,755	813,405	–	–	2,095	994,277	–	220
94,416	2,861	310	93,331	55	12,345	471	174,963	29	7 086

Import duties (including stamp tax, turn-over tax and other taxes) levied on imported telecommunication equipment for private companies, OTE, and PPC.

Description	% on CIF value EEC	Non-EEC
Acoustic signalling equipment	20	29
Telecommunications equipment using electric energy	20	25
Telephone switchboards	20	28
Broadcasting equipment only for radio, radio-telegraphy and radio-telephones	22	29
TV Tranceivers	40	47
Tranceiver equipment for radio, radio-telegraphy and radio-telephone	23	34
Other tranceiver equipment for TV	41	53
Mobile radio, marine equipment and systems	22	33
Parts and accessories for broadcasting and receiving equipment	18	35
Other as above	40	54
Electric signal equipment	20	26
Visual electric signal equipment	42	49
Audio electric signal equipment	20	26

CSO: 5500

PORTABLE TELEPHONE APPARATUS TESTED

Athens TA NEA in Greek 6 Feb 80 p 7

[Article by Dim. Tsailas]

[Text] Good news for telephone addicts. In a short while, they will be able to call out or receive phone calls--local, trunk, or even overseas calls--from within their automobiles. Or at the small tables in Syntagma Square where they sip their coffees. Or at any bench where they may be sitting. Or even lying on a table while sunbathing. Or... or...or.

This is not an April Fool's joke. It is a revolutionary advance in the state of our telephone services, which has already begun to be implemented on a test basis.

Private Cars and 'Samsonite'

The initiative for the service of "portable telephones" in our country is due of course to the OTE [Greek Telecommunications Organization]. It has already installed a special transmitter-receiver in its building on Triti Septemvriou Street. In essence, this involves a small telephone exchange, with the help of which the calling of a number from an ordinary telephone reaches the special telephone, which is housed in a private-use car or in a piece of "Samsonite" luggage--a special briefcase which contains the telephone apparatus. How is all this done? Very simple. You stop anywhere, in an enclosed area or in the open air. You open the "briefcase" and with your telephone apparatus you make a call to any city telephone in Greece, or even abroad. The manner of operation of portable telephoning is no different from the common city telephones which all of us have in our homes. The devices give the same dialing signals--for an open line, and so forth. With these devices the interlocutor can make or accept telephone calls from any part of the world, since the portable apparatus itself has an ordinary telephone number, just like the common telephones.

Another novelty of portable telephones is the capability which they provide to the subscriber--if he has in his pocket a microreceiver--of being notified whenever he "is wanted on the phone," even when he is far from his car.

As we said previously, this system of portable telephones is being put into effect already on a test basis from the OTE building, in conjunction with two vehicles equipped with such devices, which look identical to ordinary telephones. Each day, fundamental measurements on their functioning are made. The results of these measurements will be studied subsequently by technicians with the OTE and also with the outfit which is furnishing these devices.

Yes, But Not Right Away

When will all this come about? It will happen, but not in the immediate future, for reasons of the more general administrative austerity program. The system is called "MATEL," and the devices are of Swiss make, having resulted from the collective planning and work of three large Swiss firms, under the direction of the Swiss Telecommunications Organization.

Patience, therefore, especially for those ladies who never put down their phone receivers. Soon, they will be able to make calls to their friends even when they are standing in front of a shop window, informing them that they have found a wonderful little suit.

At which time, we can all recall that wise saying which talks about Mariori and her veil.

12114
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